

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
23 November 2000 (23.11.2000)

PCT

(10) International Publication Number  
WO 00/70096 A3

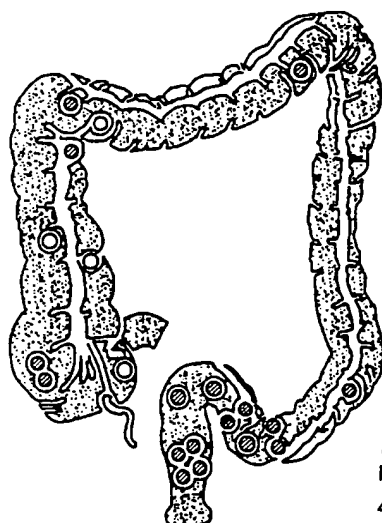
- (51) International Patent Classification<sup>7</sup>: C12Q 1/68 (74) Agent: CAMACHO, Jennifer, A.; Testa, Hurwitz & Thibault, LLP, High Street Tower, 125 High Street, Boston, MA 02110 (US).
- (21) International Application Number: PCT/US00/13655
- (22) International Filing Date: 18 May 2000 (18.05.2000) (81) Designated States (*national*): AU, CA, JP.
- (25) Filing Language: English (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).
- (26) Publication Language: English
- (30) Priority Data:  
60/134,711 18 May 1999 (18.05.1999) US  
09/468,670 21 December 1999 (21.12.1999) US
- (71) Applicant: EXACT LABORATORIES, INC. [US/US];  
63 Great Road, Maynard, MA 01754 (US).
- (72) Inventor: LAKEN, Steven; 38 Lawrence Street, Pepperell, MA 01463 (US).
- (88) Date of publication of the international search report:  
14 June 2001
- Published:  
— With international search report.  
— Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.

[Continued on next page]

(54) Title: METHODS OF DETECTING COLORECTAL DISEASE BY CONDUCTION AN ASSAY TO DETECT A MUTATION IN A BAT-26 LOCUS

(57) Abstract: Methods of the invention comprise assays for markers indicative of cancer, precancer, and other diseases or disorders. Assays of the invention are performed on heterogeneous samples obtained from patients by non-invasive or minimally-invasive methods. Such assays may be employed alone or in combination with other disease screening techniques.

COLORECTAL CANCERS  
BAT-26\* AND TUMOR SITE



PROXIMAL  
DISTAL

BAT-26  
POSITIVE (\*)  
4/9 (44%)  
0/12 (0%)  
P<0.01

BEST AVAILABLE

WO 00/70096 A3



*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**BEST AVAILABLE COPY**

# INTERNATIONAL SEARCH REPORT

Int. l. Application No

PCT/US 00/13655

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, CHEM ABS Data, MEDLINE, BIOSIS, EMBASE

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HOANG JEAN-MARC ET AL: "BAT-26, an indicator of the replication error phenotype in colorectal cancers and cell lines." CANCER RESEARCH, vol. 57, no. 2, 1997, pages 300-303, XP002162454 ISSN: 0008-5472	1,4-6
Y	page 300, right-hand column, line 35 -page 302, right-hand column, line 21	2,3,7-9, 19,21
Y	ANDREAS BRAUN ET AL: "Improved Analysis of Microsaellites Using Mass spectrometry" GENOMICS, vol. 46, 1997, pages 18-23, XP002162453 page 19, left-hand column, line 59 -page 19, right-hand column, line 3; figure 2 --- -/--	

**BEST AVAILABLE COPY**

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

13 March 2001

Date of mailing of the international search report

02/04/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax (+31-70) 340-3016

Authorized officer

Gabriels, J

# INTERNATIONAL SEARCH REPORT

Int. .ional Application No  
PCT/US 00/13655

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 741 650 A (LAPIDUS STANLEY N ET AL) 21 April 1998 (1998-04-21) cited in the application claims 1-5 ---	3,7-9,21
Y	LOTHE RAGNHILD A ET AL: "The APC gene I1307K variant is rare in Norwegian patients with familial and sporadic colorectal or breast cancer." CANCER RESEARCH, vol. 58, no. 14, 15 July 1998 (1998-07-15), pages 2923-2924, XP002162568 ISSN: 0008-5472 page 2923, left-hand column -page 2923, right-hand column, line 21 ---	19
Y	GISMONDI VIVIANA ET AL: "Characterization of 19 novel and six recurring APC mutations in Italian adenomatous polyposis patients, using two different mutation detection techniques." HUMAN MUTATION, vol. 9, no. 4, 1997, pages 370-373, XP002162567 ISSN: 1059-7794 table 2 -----	19

BEST AVAILABLE COPY

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/13655

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5741650 A	21-04-1998	AU 704696 B	29-04-1999
		AU 2240697 A	22-08-1997
		CA 2215263 A	07-08-1997
		EP 0817968 A	14-01-1998
		US 5952178 A	14-09-1999
		WO 9728450 A	07-08-1997
<hr/>			

**BEST AVAILABLE COPY**